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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

DASTOURI, MEHRDAD

ART UNIT PAPER NUMBER

2623

DATE MAILED: 11/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/410,626

Applicant(s)

OHARA ET AL.

Examiner

Mehrdad Dastouri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1-9, 12, 14 and 22 are objected to because of the following informalities:

In Lines 1 and 2 of Claim 1, "means for finding a potential match of a round corner region extracting an oblique line" should be corrected to "means for finding a potential match of a round corner region by extracting an oblique line".

In Line 4 of Claim 3, "round corner" should be corrected to "round corner." to include a period for indicating the end of the claim.

In Lines 1 and 2 of Claim 6, "means for round corner part decides" should be corrected to "means for deciding a round corner part decides" to provide claim language consistency. Claims 2-8 depend on Claim 1.

In Line 8 of Claim 12, "patter" should be corrected to "pattern".

In Line 1 of Claim 14, "corner." Should be corrected to "corner" to delete additional period.

In Line 9 of Claim 14, "within in a fixed range" should be corrected to "within a fixed range".

In Line 7 of Claim 22, "ruled line" should be corrected to "ruled line." to include a period for indicating the end of the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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3. Claim rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Lines 1-4 of Claim 7, "the means for deciding a round corner part decides the part as the round corner, in case that a round corner part decided based on the pixel density change exists, another corner of the input image is decided as a round corner. " is vague and indefinite.

In Lines 4-6 of Claim 14 and Lines 2-4 of Claim 34, "in case that a round corner decided based on the pixel density change exists, another corner of the input image is decided as a round corner. " is vague and indefinite.

In Lines 2-4 of Claim 34, "in case that a round corner part decided based on the pixel density change exists, another corner of the input image is decided as a round corner. " is vague and indefinite.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-8, 10-16, 26 and 28-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeda et al (U.S. 5,228,100).

Regarding Claim 1, Takeda et al disclose a table image processing device comprising:

means for extracting a line extracting the longitudinal line and lateral line from an input image (Figures 2 and 8; Column 8, Lines 34-38; Column 10, Lines 26-36);

means for finding a potential match of a round corner region extracting an oblique line which commences from a terminal of a line found by the line extracting means, and finding a potential match of the round corner region based on the oblique line (Figures 20A-20F, 21-23; Column 14, Lines 15-35);

means for extracting a cell finding cells containing the potential match of the round corner found by the potential match of the round corner region finding means (Figures 20A-20F, 21-23; Column 14, Lines 36-51); and

means for deciding a round corner part deciding a round corner based on the cells found by the cell extracting means (Figures 20A-20F, 21-23; Column 14, Lines 51-67, Column 15, Lines 1-55).

Regarding Claim 2, Takeda et al further disclose the table image processing device in Claim 1, wherein the means for finding the potential match of the round corner region extracts the oblique element by extracting a first oblique element starting a terminal of a longitudinal line, and a second oblique element commencing from a terminal of a lateral line within the lines found by the line extracting means (Figures 20A-20F, 21-23; Column 14, Lines 51-67, Column 15, Lines 1-55. As depicted in Figures 20A-B and 21, first oblique line is extracted from the region surrounded by horizontal lines H_1 and H_2 , and vertical lines V_2 and V_3 , and second oblique line is extracted from the region surrounded by horizontal lines H_2 and H_3 and vertical lines V_1 and V_2).

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Regarding Claim 3, Takeda et al further disclose the table image processing device in Claim 2, wherein the means finding a potential match of around corner region decides, in case that the first oblique element and the second oblique element overlap, the part as the potential match of the round corner (Figures 20A-20F, 21-23; Column 14, Lines 51-67, Column 15, Lines 1-55. As depicted in Figures 20A-B and 21, first oblique line extracted from the region surrounded by horizontal lines H_1 and H_2 , and vertical lines V_2 and V_3 , and second oblique line extracted from the region surrounded by horizontal lines H_2 , and H_3 and vertical lines V_1 and V_2 overlap each other.).

Regarding Claim 4, Takeda et al further disclose the table image processing device in Claim 2, wherein the means for finding a potential match of a round corner region decides the part as the potential match of the round corner region in case that the first oblique element and the second oblique element are within a distance fixed in advance and there is a pattern showing a line feature between them, or contact or overlap each other (Figures 20A-20F, 21-23; Column 14, Lines 51-67, Column 15, Lines 1-55. As depicted in Figures 20A-B and 21, first oblique line extracted from the region surrounded by horizontal lines H_1 and H_2 , and vertical lines V_2 and V_3 , and second oblique line extracted from the region surrounded by horizontal lines H_2 and H_3 and vertical lines V_1 and V_2 contact with each other and overlap each other.).

Regarding Claim 5, Takeda et al further disclose the table image processing device in Claim 2, wherein the means for finding potential match of the round corner region decides the part as the potential match of the round corner region in case that any another oblique element does not exist near an identified oblique element and there

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is a pattern showing a line feature at the terminal of the identified oblique line (Figures 20A-20F, 21-23; Column 14, Lines 51-67, Column 15, Lines 1-55. As depicted in Figures 20A-20F, there is not any other oblique element near the identified oblique elements, and there is a pattern showing a line feature at the terminal of the identified oblique line.).

Regarding Claim 6, Takeda et al further disclose the table image processing device in Claim 1, wherein the means for round corner part decides the part as the round corner in case that the pixel density at a corner of a cell extracted by the means for extracting the cell changes in a fixed order (Figures 20C-20F; Column 14, Lines 51-67, Column 15, Lines 1-4).

Regarding Claim 7, as best understood by the Examiner, Takeda et al further disclose the table image processing device in Claim 1, wherein the means for deciding a round corner part decides the part as the round corner, in case that a round corner part decided based on the pixel density change exists, another corner of the input image is decided as a round corner (Figures 20C-20F; Column 14, Lines 51-67, Column 15, Lines 1-4).

Regarding Claim 8, Takeda et al further disclose the table image processing device in Claim 1, wherein the means for deciding a round corner decides, in case that a pattern of nth order function generated between the terminals of lines extracted by the means for extracting line matches a part of the input image, the part as the round corner (Figures 20C-20F; Column 14, Lines 51-67, Column 15, Lines 1-4. The non-linear curves in Figures 20C-20F depict a pattern of nth order function.).

With regards to Claim 10, arguments analogous to those presented for Claims 1-3 are applicable to Claim 10.

With regards to Claim 11, arguments analogous to those presented for Claims 1 and 4 are applicable to Claim 11.

With regards to Claim 12, arguments analogous to those presented for Claims 1 and 5 are applicable to Claim 12.

With regards to Claim 13, arguments analogous to those presented for Claims 1 and 6 are applicable to Claim 13.

With regards to Claim 14, arguments analogous to those presented for Claims 1 and 7 are applicable to Claim 14.

With regards to Claim 15, arguments analogous to those presented for Claims 1 and 8 are applicable to Claim 15.

With regards to Claims 16, 26 and 28, arguments analogous to those presented for Claim 1 are applicable to Claims 16, 26 and 28.

With regards to Claim 29, arguments analogous to those presented for Claim 2 are applicable to Claim 29.

With regards to Claim 30, arguments analogous to those presented for Claim 3 are applicable to Claim 30.

With regards to Claim 31, arguments analogous to those presented for Claim 4 are applicable to Claim 31.

With regards to Claim 32, arguments analogous to those presented for Claim 5 are applicable to Claim 32.

With regards to Claim 33, arguments analogous to those presented for Claim 6 are applicable to Claim 33.

With regards to Claim 34, arguments analogous to those presented for Claim 7 are applicable to Claim 34.

With regards to Claim 35, arguments analogous to those presented for Claim 8 are applicable to Claim 35.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 17-21, 25 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Katsuyama et al (U.S. 6,035,061).

Regarding Claim 17, Katsuyama et al disclose a table image processing device including means for processing finding a ruled line, wherein the means for processing finding the ruled line comprises:

means, within potential matches of the ruled line of a longitudinal line and lateral line extracted from an input image, for finding whether the identified potential match of the ruled line is a ruled line or not based on roughness of the potential match of the ruled line and any one of threshold of different plural thresholds corresponding to an

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image pattern extracted from the input image pattern existing around the identified potential match of the ruled line (Figures 11-13; Column 10, Lines 58-67, Column 11, Lines 1-14).

Regarding Claim 18, Katsuyama et al further disclose the table image processing device in Claim 17, wherein the means for processing finding a ruled line comprises:

a pixel density finding process part finding whether the identified potential match of the ruled line is ruled line or not based on the roughness of the potential match of the ruled line by using a first threshold fixed in advance and a second threshold fixed in advance higher than the first threshold (Figures 11-13; Column 10, Lines 58-67, Column 11, Lines 1-9),

wherein the pixel density finding process part, corresponding to the pixel density of the image pattern existing around the identified potential match of the ruled line, uses the first threshold in a case that the image pattern other than the identified potential match of ruled line is high, and uses the second threshold in case that the image pattern other than the identified potential match of ruled line is low (Column 11, Lines 4-9; Column 12, Lines 31-37).

Regarding Claim 19, Katsuyama et al disclose the table image processing device in Claim 18 ,wherein the ruled line finding means,

when the potential match of the ruled line is a longitudinal line, an image pattern of same length as the potential match of the ruled line existing right and side of the potential match of the ruled line within a fixed range is used as the image pattern

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existing around the potential match of the ruled line (Figures 11-13; Column 10, Lines 58-67, Column 11, Lines 1-3),

when the potential match of the ruled line is a lateral line, an image pattern of same length as the potential match of the ruled line existing up and under of the potential match of the ruled line within in a fixed range is used as the image pattern existing around the identified potential match of the ruled line (Figures 11-13; Column 11, Lines 4-9).

Regarding Claim 20, Katsuyama et al disclose the table image processing device in Claim 17, wherein the ruled line finding means comprises:

the ruled line width finding process means finding whether the potential match of the ruled line is ruled line or not base on the roughness found by the first threshold fixed in advance or the second threshold fixed in advance higher than the first threshold (Figure 40; Column 22, Lines 1-12);

the ruled line width finding process means, corresponding to the width of the image pattern existing around the identified potential match of the ruled line, uses the first threshold in a case that the width of the image pattern is wide, and uses the second threshold in a case that the width of the image pattern is narrow (Column 22, Lines 1-67, Column 23, Lines 1-30).

Regarding Claim 21, Katsuyama et al disclose the table image processing device in Claim 20, wherein the ruled line width finding process means uses the potential match of the ruled line extending to same direction as the identified potential match of ruled line and adjacent or connected to the identified potential match of ruled line as the

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image pattern existing around the identified potential match of ruled line (Figure 11; Column 10, Lines 58-67, Column 11, Lines 1-3).

With regards to Claims 25 and 27, arguments analogous to those presented for Claim 17 are applicable to Claims 25 and 27.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 9 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al (U.S. 5,228,100) in view of Tsuchiya et al (U.S. 5,857,034).

Takeda et al do not explicitly disclose further limitations of Claim 9.

Tsuchiya et al disclose a method for processing character data comprising:

means for inputting an image containing a sheet image containing ruled lines (Figures 1 and 2; Column 4, Lines 11-23); and

means for finding regions recognizing character finding the character recognition region by neglecting the round corner part decided by the means for deciding round corner in the cells containing the round corner (Figure 19; Column 10, Lines 56-67, Column 11, Lines 1-7).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Takeda et al invention according to the teachings of Tsuchiya et al to implement further limitations of Claim 9 because it will expand the

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versatility of table image processing system and will prohibit overlapping the character data and table image ruled lines.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuyama et al (U.S. 6,035,061).

Regarding Claim 22, Katsuyama et al disclose the table image processing device in Claim 20, wherein the ruled line width finding process means decides the width of the potential match of the ruled line to be wide in a case that the width of potential match of ruled line is greater than the n times of the width of the image pattern existing around the identified potential match of ruled line (Column 22, Lines 10-12, $n=4$), and to be narrow in a case that the width of potential match of ruled line is less than the $1/n$ times of the width of the image pattern existing around the identified potential match of ruled line (Figure 40; Column 21, Lines 33-67, Column 22, Lines 1-65, in particular Items (r) and [#12]).

Katsuyama et al disclose the value of 0.4 for narrow ruled line in lieu of the value $\frac{1}{4}$.

Assigning a value for the width of the ruled lines (0.25 or 0.4) is the designer choice and is in the same order of magnitude.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Katsuyama et al invention to consider a value of $1/n$ ($1/40$) for the width of the narrow ruled lines because it is a reasonable value for narrow ruled line's width and a logical selection in the order of magnitude considered in the art for practical purposes.

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11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al (U.S. 5,228,100) in view of Katsuyama et al (U.S. 6,035,061).

With regards to Claim 23, arguments analogous to those presented for Claims 1 and 17 are applicable to Claim 23.

12. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al (U.S. 5,228,100) further in view of Katsuyama et al (U.S. 6,035,061) and Tsuchiya et al (U.S. 5,857,034).

With regards to Claim 24, arguments analogous to those presented for Claims 1, 2, 9 and 17 are applicable to Claim 24.

Other prior art cited

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication US 2002/0021480 to Ohara et al is cited for apparatus for extracting ruled line from multiple-valued image.

U.S. Patent 5,896,464 to Horiuchi et al is cited for ruled line elimination apparatus and method.

Japanese Patent Publication JP- 07 282191 to Bessho Goro is cited for table processing method.

Contact Information

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (703)

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305-2438. The examiner can normally be reached on Monday to Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9143 for regular communications and (703) 872-9143 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology Center Customer Service Office whose telephone number is (703) 306-0377.



Mehrdad Dastouri
Patent Examiner
Group Art Unit 2623
November 4, 2002